

REMARKS

Further consideration of this application courteously is solicited.

The Applicants and the undersigned greatly appreciate the interview granted by Examiners Lund and Chandra on November 7, 2007. The interview proved productive in advancing the prosecution of this application. Agreement was reached that Applicants' inventions disclosed in Figs. 9 and 12 contained subject matter that is not disclosed in the art that has been applied against this application. The claims have been amended pursuant to the discussions that transpired during the interview.

By this paper, independent claims 1 and 17 have been canceled. Dependent claims 2-7, 12-14, and 16 also have been canceled. Independent claims 8 and 15 have been amended. Dependent claim 9 remains dependent from claim 8.

With respect to the August 2, 2007 Office Action, the rejections began with one directed to claim 13 under 35 U.S.C. § 112, second paragraph. Claim 13 has been canceled. Withdrawal of the rejection courteously is solicited.

Next, claims 1-4 and 12 were rejected under 35 U.S.C. § 103(a) as purportedly obvious over U. S. Patent 6,780,759 to Ferrens et al. in view of U. S. Patent 5,368,648 to Sekizuka, U. S. Patent 6,460,404 to Chan et al., and U. S. Patent 6,743,473 to Parkhe et al. This rejection has been made moot by the cancellation of claims 1-4 and 12. Hence, withdrawal of the rejection is solicited.

Next, claims 5 and 6 were rejected under 35 U.S.C. § 103(a) as purportedly obvious over Ferrens et al. in view of Sekizuka, Chan et al., and Parkhe et al., further in view of U. S. Patent 6,129,546 to Sada. This rejection likewise has been made moot by cancellation. Withdrawal of the rejection courteously is solicited.

Claims 7 and 14 were rejected as purportedly obvious over Ferrens et al., Sekizuka, Chan et al., and Parkhe et al., further in view of U. S. Patent 6,140,256 to Ushikawa. This rejection also has been made moot. Withdrawal of the rejection is respectfully requested.

Claim 8 is retained in this application. It has been rejected under 35 U.S.C. § 103(a) as purportedly obvious over Ferrens et al. in view of Sekizuka, Chan et al., Parkhe et al., and Sada et al., further in view of U. S. Patent 6,253,775 to Kitahara et al. This rejection is overcome by amending claim 8 in the manner discussed during the interview.

Claim 8 describes details of Applicants' exemplary, preferred embodiments shown in Fig. 12. As amended, claim 8 now clearly distinguishes the separate arm locking mechanism from other structure cited in the claim. As a reminder of the exemplary structure, reference again will be made to Fig. 12.

Claim 8 previously recited "arms" (see arms 111) that connect to both the "substrate support rods" (see rods 102) and the "first air cylinder actuator" (see cylinder 109) that moves arms 111 vertically and thus moves the substrate support rods 102 vertically with the arms 111. Claim 8 now recites both the previously-recited "stopper" that corresponds to locking pin 146 in Fig. 12, and the newly recited "actuator for moving the stopper" that corresponds to actuator 147 in Fig. 12. Applicants specifically have incorporated a separate, auxiliary actuator (e.g. actuator 147) and associated stopper (e.g. locking pin 146) to prevent damage to the substrate, in the event that the "first air cylinder actuator" (e.g. cylinder 109) malfunctions. Indeed, at its end, claim 8 actually recites that the combination of Applicants' "stopper" and "actuator for moving the stopper" prevent any upward movement of the "substrate support rods" (102) in the event of reduced supply of air to their "first air cylinder actuator" (109). As agreed during the interview, nothing in any of the six combined patents applied against claim 8 teaches or suggests Applicants' overall arrangement of a substrate processing vessel including the extra protective structure embodied by Applicants' recited "stopper" and "actuator for moving the stopper." This is true of Kitahara et al. that was asserted as disclosing a locking mechanism incorporated into the lid of a lid operating device. None of these six patents, including Kitahara et al., whether considered individually, or in combination, recites Applicants' claimed arrangement of (1) an air cylinder (such as actuator 109), arms (such as arms 11) connecting the cylinder with substrate support rods (such as rods 102) for vertically moving the rods, and further arrangement of (2) a separate protective arrangement in the way of a "stopper" (such as locking pin 146) and its "actuator" (such as actuator 147) for preventing upward movement of the substrate support rods

in the event of malfunction conditions at the air cylinder. For at least these reasons, independent claim 8 courteously is urged as patentable over the six patents applied of record. Withdrawal of the rejection of claim 8 thus respectfully is solicited.

Claim 9 depends from claim 8. It was rejected over the same art as applied to claim 8, namely Ferrens et al., Sekizuka, Chan et al., Parkhe et al., Sada, and Kitahara et al., and also a seventh patent, namely U. S. Patent 6,262,570 to Akaike et al. This rejection is overcome for the same reasons as stated in connection with claim 8. Akaike et al. does not remedy the deficiencies of Ferrens et al., Sekizuka, Chan et al., Parkhe et al., Sada, and Kitahara et al. with respect to claim 8. Hence, the rejection of claim 9 is overcome. Withdrawal of this rejection, along with the rejection of claim 8, earnestly is solicited.

Next, claim 13 has been rejected as purportedly obvious over Ferrens et al., Sekizuka, Chan et al., Parkhe et al., and further in view of U. S. Publication 2002/0045008 to Toshima et al. This rejection likewise is moot by the cancellation of claim 13.

Next, consideration is made of the rejection to claim 15. Claim 15 is maintained. It has been rejected under 35 U.S.C. § 103(a) as purportedly obvious over Ferrens et al. in view of Parkhe et al., Toshima et al., and also U. S. Patent 5,804,042 to Ferreira et al. The Ferreira et al. patent was discussed at length during the interview. Claim 15 was amended pursuant to the discussion during the interview in order to patentably distinguish over the art applied to it.

As amended, claim 15 recites three additional features of Applicants' arrangement. These are (1) that the recited springs correspond to the substrate support rods according to a one-to-one correspondence, (2) that each spring is concentric around the axial axis through its corresponding substrate support rod, and (3) that the pressing member of the cover comes into "direct" contact with the heads of the substrate support rods. With respect to the embodiment of Fig. 9, each recited "spring" in amended claim 15 reads on spring 73 which is concentric about the axis that extends longitudinally through the shank of support rod 64. Each support rod 64 has only one corresponding spring 73. The pressing member 74 of cover 41b directly contacts the head 63 of support rod 64 to urge the support rod against the bias of its associated spring 73.

The new features and description added to claim 15 clearly distinguish it over the art cited of record, including the Ferreira et al. patent. Ferreira et al. do not teach or suggest springs

in one-to-one correspondence with an associated support rod, in particular, in a concentric relationship to the longitudinal or axial axis through such support rod. Moreover, the Ferreira et al. clapping structure 46 presses against floating ring 72, rather than "directly" against the head portion of each of Ferreira et al.'s support pins 74. For at least these reasons, the rejection of claim 15 is overcome. Withdrawal of this rejection earnestly is requested.

Claim 16 has been rejected as purportedly obvious over Ferrens et al., in view of Sekizuka, Chan et al., Parkhe et al., and further in view of Kitahara et al. This rejection has been made moot by the cancellation of claim 16.


Lastly, claim 17 was rejected over Ferrens et al., Parkhe et al., Toshima et al., and Ferreira et al. Claim 17 has been canceled. Hence, this rejection has been made moot and also must be withdrawn.

In view of the foregoing amendments and remarks, it courteously is urged that all of the remaining claims are allowable and that this application is in condition for allowance.

If any additional fees under 37 C. F. R. §§ 1.16 or 1.17 are due in connection with this filing, please charge the fees to Deposit Account No. 02-4300, Order No. 033082M238.

Respectfully submitted,
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